

# White Paper Report

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# BrailleSC.org White Paper to the NEH Office of Digital Humanities Level I Digital Humanities Start-Up Grant

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**Summary:** The BrailleSC project received Level I startup funding (\$24,987) to support the collection of oral histories concerning braille and braille literacy, the preparation of pedagogical materials, and the development of accessibility tools for WordPress and Omeka that allow for enhanced visitor experiences for blind and low-vision users.

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## I. Introduction

We set out not only to create an online resource devoted to the importance of braille and braille literacy in everyday life but also to model the ways in which digital humanities products could be made accessible to people with disabilities. Additionally, we planned to create software tools that would make it easier for content creators to provide accessible interfaces to their products.

Over the last several decades, scholars have developed standards for how best to create, organize, present, and preserve digital information so that future generations of teachers, students, scholars, and librarians may still use it. What has remained neglected for the most part, however, are the needs of people with disabilities. As a result, many of the otherwise most valuable digital resources are useless for people who are—for example—deaf or hard of hearing, as well as for people who are blind, have low vision, have difficulty distinguishing particular colors or for people with limited fine motor skills. Although professionals working in educational technology and commercial Web design have made significant progress in meeting the needs of such users, the humanities scholars creating digital projects all too often fail to take these needs into account.

While digital humanities scholars have traditionally valued open access resources, they have seldom worked to make sure online resources could be *accessible*, in the specialized sense of “usable by people with disabilities.” Digital knowledge tools that assume all end-users approach information with the same abilities risk excluding a large population of people. As cultural heritage collections are increasingly preserved and presented as digital resources, making such resources accessible is necessary to enable people with a variety of disabilities and abilities to participate fully in humanities research and teaching.

To create BrailleSC.org, we used two of the most common content management systems in digital humanities: WordPress <<http://www.wordpress.org>> and Omeka <<http://www.omeka.org>>. By showing that front-end accessibility could be achieved with these tools, we hope to influence other projects that use them. By creating WordPress and Omeka plugins that enhance accessibility, we hope to provide easy-to-implement accessibility solutions for digital humanities projects.

## II. Participants

Our project is a collaboration among scholars and students from two different institutions—the University of South Carolina Upstate and the University of South Carolina Columbia—and from a variety of disciplines:

- **George Williams**, the project director, is an assistant professor of English at the University of South Carolina Upstate who managed the development of the content for the Web site as well as of the accessibility tools for the user interface.

- **Tina Herzberg**, assistant professor of education and director of the Special Education-Visual Impairment Program at the University of South Carolina Upstate, gathered and developed the pedagogical materials on the site, and she acted as liaison to the state-wide community of individuals with visual impairments, helping to arrange oral history interviews and usability testing.
- **Cory Bohon**, undergraduate computer and information systems major at the University of South Carolina Upstate, maintained the project Web site, developed the accessibility solutions, and assisted with documentation and interface testing.
- **Jennifer Guiliano**, associate director of the Center for Digital Humanities (CDH) and research assistant professor of history at the University of South Carolina Columbia (since departed), acted as liaison between the Upstate project members and the CDH, which houses the server that hosts the Web site and provides technical guidance and advice.
- **Jun Zhou**, a graduate student in computer science at the University of South Carolina Columbia and lead programmer (since departed) at the CDH, provided technical advice and guidance regarding future plans for the development and implementation of tools for accessibility.
- Finally, several undergraduate USC Upstate students assisted with researching braille and braille literacy, editing oral history interview videos, transcribing the interviews, and captioning the videos: Madelaine Hoptry, David Pruitt, Michelle Smith, and Morgan Thomas.

### **III. Outcomes**

BrailleSC.org launched on July 1, 2010 with the goal of being an accessible and easy-to-understand resource concerning braille and braille literacy. Based on the data collected about site traffic, we conclude that the site has reached a substantial audience. Since our launch, BrailleSC.org has generated 21,240 pageviews from 6,917 unique visitors. The top five countries from which visitors view our site are, in order, the United States, the United Kingdom, India, Canada, and Australia. The top ten states from the U.S. are, in order, South Carolina, Texas, California, New York, North Carolina, Florida, Georgia, Virginia, Pennsylvania, and Illinois.

Via the WordPress installation, we have so far published 23 posts containing news and practical tips regarding braille. This content ranges from pedagogical materials to assist teachers in developing best practices in braille instruction, strategies for using braille in everyday life, and

resources for families, stressing the importance of braille and sharing methods of encouraging braille literacy. We are continuing to solicit contributions for such posts.

Via the Omeka installation, we have so far published only 7 oral history interviews with individuals discussing their experiences with braille and braille literacy. By contrast, we have recorded over 30 such interviews. For reasons explained in “IV. Lessons Learned” below, we underestimated the amount of time it would take to transcribe, edit, and caption the videos for these interviews. However, we anticipate publishing the remaining interviews by July 15, 2012.

We created a plugin, called AccessKeys, for both WordPress and Omeka. These plugins allows site administrators to specify keyboard shortcuts for end-users to navigate the various sections of the website. People who are blind do not navigate Web sites through a graphical user interface; they usually rely exclusively on their keyboard. Access keys are time-saving shortcuts that allow them to navigate quickly and easily. For instance, an administrator could specify that the access key “s” would be reserved for loading the “Search” page, the “h” key could be reserved for the “Home” page, the “a” key for the “About” page, and so on. These open-source plugins are available online with documentation at <<http://accessiblefutures.org/plugins.html>> and may be downloaded and implemented by anyone administering their own WordPress or Omeka site. Any future tools we develop, such as the text-enlargement plugins still in progress, will be made available in the same way.

We developed a workflow for recording, transcribing, editing, captioning, and publishing the oral history interviews we gathered.

**Recording.** Interviews were captured to an SDHC card via a relatively inexpensive pocket camcorder and a lavalier microphone attached to the collar of the interview subject. We adopted this approach for a number of reasons:

- a smaller camera is less obtrusive than larger, professional-grade devices, which we used in our early interviews and which take longer to set up and are more likely to make the subject self-conscious;
- in our experience, the quality of the resulting video and audio was equal to what we captured with larger, professional-grade devices;
- transferring the resulting video and audio to a computer for editing and processing was faster and easier using the SDHC card format when compared to the MiniDV tapes used by the larger, professional-grade devices available to us; and

- one of our goals was to demonstrate the ways in which a digital humanities project could make use of consumer-level electronics and thus not necessarily require a substantial equipment budget or professional levels of technical expertise.

**Editing video.** The videos were imported into iMovie for editing and to add information at the beginning and end of each interview: the BrailleSC project logo, the name of the interviewee, the date and location of the interviewee, the name of the interviewer, the names of the transcriptionist(s), and the Creative-Commons license for the interview. (We chose iMovie to demonstrate, as explained above, that digital humanities projects may be undertaken without requiring significant budgets or professional-level tools.)

**Transcribing.** We experimented with a variety of methods for transcribing the audio from the interviews before finally settling on an online-based process using a combination of Vimeo <<http://Vimeo.com>> (for storing the videos) and Amara, formerly Universal Subtitles, <<http://UniversalSubtitles.org>> (for transcribing / captioning the audio from the videos). Amara provides a user-friendly, keyboard-based interface that allows transcription to be done piecemeal by multiple participants over an extended period of time. We have no dedicated digital humanities lab at USC Upstate, so it was necessary to establish an online-based process allowing project participants to work on the transcriptions from any location at any time; at a school where a significant percentage of our students commute from home and work off-campus jobs, this was a necessary feature.

(Note: the NEH/ODH-funded tool Scripto <<http://Scripto.org>> is an excellent online tool for transcribing a variety of documentary materials, but at the time of this writing Scripto has not developed an interface suited for transcribing audio. Such material requires the transcriptionist to start and stop in the audio frequently and to occasionally jump back a few seconds to capture what may have been missed or misunderstood. Additionally, Scripto does not yet provide an interface for synchronizing the transcription to the audio/video of the material being transcribed. Because Amara has all of these features, we chose it as our transcription tool.)

**Editing transcriptions.** Once the transcriptions were completed, they were downloaded from Amara and then uploaded to GoogleDocs <<http://docs.google.com>>, where permissions were shared among project participants to enable proofreading and editing. Each transcription was proofread twice against the audio of the interview: the two proofreaders were never the same person who had done the original transcription.

**Captioning.** After each transcription was carefully proofread, it was uploaded back to Amara where captions were added by synchronizing the transcription to the audio of the interview.

**Publishing.** Finally, each interview was added to the Omeka archive in a variety of formats: a text-only transcription, an audio-only recording (for blind or low-vision end-users), a medium-

quality video with captions (for end-users without high-speed Internet access), and a high quality video with captions (for end-users with high-speed Internet access).

#### **IV. Lessons Learned**

Knowing what we know now, we are moving forward having learned a few things that will make continued progress more efficient than our initial efforts.

- Smaller cameras with SDHC cards are easier to use and less time consuming than professional grade cameras that use MiniDV tapes. Several of our early interviews were recorded to MiniDV, and converting the data on those tapes to a digital file suitable for editing on a computer was very time consuming.
- A carefully conducted interview is better than a free-form one that requires editing later. Though we had a standard set of oral history interview questions to work with, our early interviews tended to range somewhat freely over a variety of topics and took on the characteristics of conversations rather than oral history. These required substantial editing later to focus on the content of the interview subject's words. In later interviews, we have kept the final product in mind when talking with the subject.
- Providing good-quality captions is time consuming, but necessary. We did not initially plan to caption the videos but to focus on transcriptions to be made available separate from the videos. However, we quickly decided that publishing videos without captions would make them useless to people who are deaf, something that contradicts our belief in the importance of accessibility. As a result, we committed ourselves to captioning each video. The increased time that this process takes is the reason why we have so far only published 7 of the more than 30 interviews that we have gathered so far. However, we anticipate publishing all of our interviews by July 15, 2012.
- It is possible to crowdsource the transcription (and captioning) of interviews using a combination of Amara and Vimeo, but finding the "crowd" to undertake this process is not easy. We were able to make use of paid undergraduate student research assistants, but our early hopes that volunteers interested in the project would contribute in any significant way were disappointed. Suitable progress on the captioning and transcribing of our interviews has proven to be the sticking point in our productivity.
- Finally, the server hosting our site was hacked and taken offline for a number of months, which brought our work to a halt. A suitable backup was, unfortunately, something we struggled to find. In the future, we will need to make regular backups an essential part of our workflow and to establish an alternate server where our site may be re-established quickly and relatively easily if necessary.

## V. Future Plans

Our project is ongoing, and we have a number of ambitious plans for the future:

- We will finish editing, captioning, and publishing the oral histories we have already gathered, using the workflow described above;
- Once those are published, we will continue to record new oral histories;
- During the 2012-2013 academic year, we will develop an online, automatic braille translation tool; this work will be supported by an NEH Office of Digital Humanities Level 2 Digital Humanities Startup Grant;
- During the 2013-2014 academic year, our goal is to develop a mobile application—for both the iOS and Android platform—designed to record oral histories, capture some essential metadata, and upload directly to an installation of Omeka or WordPress. We plan to apply for a grant to support this work;
- During the 2013-2014 academic year, our goal is to work on an easy-to-use, keyboard-friendly, online captioning tool that mimics Amara’s interface but saves captions and time-based metadata directly into the “Transcription” field of an oral history item in an Omeka-based collection. We plan to apply for a grant to support this work;
- During the 2012-2013 academic year, we are going to pursue activities designed to raise awareness within the digital humanities community of the importance of accessibility and to increase participation in the fulfilling the goal of making digital humanities resources accessible.

## VI. Conclusions

The digital humanities community is uniquely positioned to make significant contributions to the accessibility of humanities resources in digital formats. The community’s tradition of careful and scholarly attention to metadata, to extensively structured documents, and to semantic markup make the resources we create ideally suited for conversion into digital formats used by people with disabilities: well-formatted, contracted braille; digital talking books; detailed and region-specific descriptions of images; captions for videos; transcriptions of audio.

People with disabilities will benefit significantly if the digital humanities community pursues projects that take into account formats like these and the devices that make use of them. However, by working to meet the needs of disabled people—and, importantly, by collaborating with disabled people through rapid prototyping and usability testing—the digital humanities

community will also benefit significantly as it re-thinks its assumptions about how digital devices could and should work with and for people.

We would do well to be aware of the range of “assistive technology” software applications and hardware devices that do not work in the same ways as the devices used by non-disabled people. In addition to being compatible with desktop computers, laptops, smart-phones, and tablet devices, the materials we create should also work well with such tools as refreshable braille displays, digital talking book devices, screen reader applications, and screen magnification software.

We might also re-consider our “essentialist” thinking about the keyboard and the mouse, and not just because of the technologies that we perceive to be specific to disabled people. Speech recognition technologies, while far from perfect, are already accurate enough to allow writers—if that is still the correct term—to compose documents without the need for typing. And the growth of touch-screens, primarily but not exclusively available on mobile devices, bring the possibility of a mouse-less future ever closer. Both of these technologies are extremely useful for people who are disabled, but they are used for the most part by people who are not.

To continue to create projects designed primarily for the screen-keyboard-mouse environment would be foolish: if a resource doesn’t work on a device that lacks one of those components, then that resource is already worthless to a significant number of computer users, disabled and non-disabled alike. As we observe contemporary computing devices proliferate and diversify, we need to plan for a future in which our current digital resources continue to be not only useful, but usable.